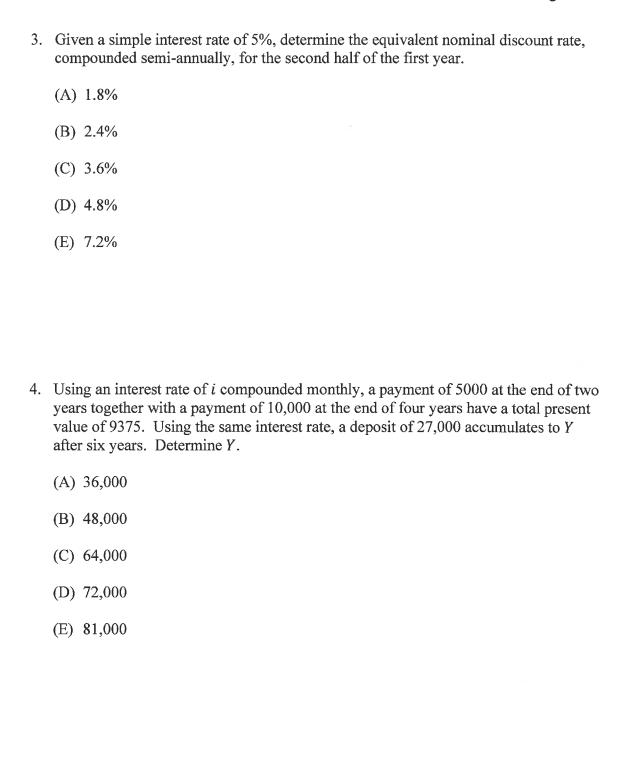
MAP 4170 Test 1		Name	Name: Date: June 1, 2017	
Show sufficient work and clearly mark you		ufficient work and clearly mark your answe	rs.	Each problem is worth 10 points.
1.	Det	eposit of 500 accumulates to 625 after 2.5 yearmine the accumulated value after 2.5 year earns an annual effective interest rate of i .		
	(A)	615		
	(B)	620		
	(C)	625		
	(D)	630		
	(E)	635		
2. A deposit of <i>X</i> accumulates to 1000 after 6 years. During the first two years, is credited using a simple discount rate of 6%. During the second two-year p interest is credited using a nominal interest rate of 6% compounded bi-annua During the third two-year period, interest is credited using a force of interest Determine <i>X</i> .				ring the second two-year period, 6% compounded bi-annually.
	(A)	697		
	(B)	700		
	(C)	702		
	(D)	705		
	(E)	707		



- 5. An account credits interest using $\delta_t = k \cdot \frac{t}{t^2+2}$ where t is the number of years after January 1, 2017. A deposit of X made on January 1, 2017, accumulates to 3X on January 1, 2021. Determine the accumulated value of this deposit on July 1, 2019.
 - (A) 2.01X
 - (B) 2.03X
 - (C) 2.05X
 - (D) 2.07X
 - (E) 2.09X

- 6. An account credits interest using a simple interest rate of 5%. Determine i_5 , the annual effective interest rate for year 5.
 - (A) 4.2%
 - (B) 4.3%
 - (C) 4.4%
 - (D) 4.5%
 - (E) 4.6%

- 7. A single deposit of *X* is made into an account that credits interest using a simple discount rate of *d* over a 10-year period. At the end of 3 years, the amount in the account is 1000, whereas at the end of 5 years, the amount in the account is 1100. Calculate *d*.
 - (A) 2%
 - (B) 3%
 - (C) 4%
 - (D) 5%
 - (E) 6%

- 8. A deposit of 1000 is made into account A, which credits interest using a simple interest rate of 12%. At the same time, a deposit of 1000 is made into account B, which credits interest using a quarterly effective discount rate of 2%. Let T denote the time at which the forces of interest in the two accounts are equal. If α and β denote the amounts in accounts A and B, respectively, at time T, determine $\alpha \beta$.
 - (A) 100
 - (B) -50
 - (C) 0
 - (D) 50
 - (E) 100

- 9. Determine $\frac{d}{dd}(v^2)$.
 - (A) 2v
 - (B) -2v
 - (C) $2v^3$
 - (D) $-2v^3$
 - (E) none of the above

- 10. Given a nominal interest rate of i, converted semiannually, let d denote the equivalent nominal discount rate, converted semiannually. Determine d in terms of i.
 - (A) $d = \frac{i}{1+i}$
 - (B) $d = \frac{2i}{1+i}$
 - (C) $d = \frac{2i}{1+2i}$
 - (D) $d = \frac{2i}{2+i}$
 - (E) none of the above